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<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/627,852	SMITH ET AL.	
	Examiner	Art Unit	
	Kara E. Geisel	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--  
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the interview held on 17 March 2005.
2. ☒ The allowed claim(s) is/are 1,3,4,6,10-15,19 and 20.
3. ☒ The drawings filed on 25 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

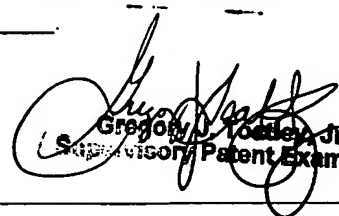
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date <u>0305</u></li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
|---|--|

  
 Gregory J. Looney, Jr.  
 Supervisory Patent Examiner

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## DETAILED ACTION

### *Examiner's Amendment*

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gene Tyler on March 17<sup>th</sup>, 2005.

The application has been amended as follows:

In regards to claims 1 and 6, the claims have been amended to include "two or more optical probes", "wherein the optical probes are attenuated total reflectance probes located in a free water knock-out", so as to include the subject matter of claim 9, which had been indicated as containing allowable subject matter in the previous Office Action (paper number 0804).

In regards to claim 13, the claim has been amended to include the subject matter of claim 17, which had been indicated as containing allowable subject matter in the previous Office Action (paper number 0804).

**Claims 2, 5, 7, 8, 9, and 16-18 have been cancelled in order to conform to the amendments above.**

In regards to claims 3, 10, 15, 19, and 20, the dependency of these claims and the number of probes have been amended to conform to the amendments above.

The amendments appear below:

1. A method for real time determination of emulsion in a formation fluid comprising: (a) positioning ~~an~~ two or more optical probes, each probe having a probe surface ~~which~~ that can measure changes in total internal light reflectance, such that the probe surfaces are ~~is~~ in contact with a formation fluid, wherein the each probe and its surface are composed of material ~~which~~ that can withstand an

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extended period in contact with the formation fluid; (b) measuring the total internal light reflectance at the each probe surface; and (c) determining in real time therefrom whether an emulsion is present or the degree of emulsification at such surface, wherein the optical probes are attenuated total reflectance probes located in a free water knock-out.

3. The method of Claim 2 1, wherein the attenuated total reflectance probes ~~includes~~ include a photometer that measures light in a wavelength range of from about 400 to about 1500 nm.

6. A method for controlling emulsion formation in a formation fluid comprising: (1) placing an two or more optical probes, each probe having a probe surface ~~which~~ that can measure changes in total internal light reflectance thereat, in contact with a formation fluid; (2) measuring the changes in total internal light reflectance at the probe surfaces; (3) determining in real time the presence of emulsion in the formation fluid as a function of the changes in total internal light reflectance; (4) comparing the determination of (3) to a predetermined maximum acceptable emulsion presence; and (5) effecting a change in the rate of addition, if any, to the formation fluid of an additive effective to reduce the emulsion presence; wherein: (a) ~~the~~ each optical probe is composed of a material ~~which~~ that can withstand an extended period of contact with the environment to which it is exposed; and (b) the rate of addition, if any, to the formation fluid of a demulsification additive is: (i) increased when the emulsion presence is greater than the predetermined maximum acceptable emulsion presence; (ii) decreased or maintained when no emulsion is detected or when the emulsion presence is less than the predetermined maximum acceptable emulsion presence; wherein the optical probes are attenuated total reflectance probes located in a free water knock-out.

10. The method of Claim 7 6 wherein the attenuated total reflectance probes ~~includes~~ include a photometer capable of measuring light in a wavelength range of from about 400 to about 1500 nm.

13. A system for controlling emulsion formation in a formation fluid comprising a fluid flow path for flowing formation fluid recovered from a subsurface formation; an optical probe, having a probe

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surface ~~which~~ that can measure changes in light reflectance at the probe surface, in contact with the formation fluid; a processor associated with the optical probe enabling collection of data therefrom, such data corresponding to the presence of emulsion or degree of emulsification in the formation fluid; and a controller associated with the processor enabling translation of data therefrom to initiate action to modify the presence of emulsion or degree of emulsification wherein the fluid flow path comprises a free water knock-out and at least three optical probes are located inside the free water knock-out having an oil outflow pipeline and a water outflow pipeline, at positions such that a first probe is at or adjacent to the level of the oil outflow pipeline, a second probe is at or adjacent to the level of the water outflow pipeline, and a third probe is between the oil outflow pipeline and the water outflow pipeline.

15. The system of Claim 14 wherein the optical probes ~~is-an~~ are attenuated total reflectance probes.

19. The system of Claim ~~17~~ 13 wherein the optical probes are attenuated total reflectance probes.

20. The system of Claim ~~12~~ 13 wherein the processor and controller incorporated into a single unit.

#### *Examiner's Reasons for Allowance*

Claims 1, 3-4, 6, 10-15, and 19-20 are allowed over the prior art of record for the reasons set forth in the previous Office Action (paper number 0804).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is 571 272 2416. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

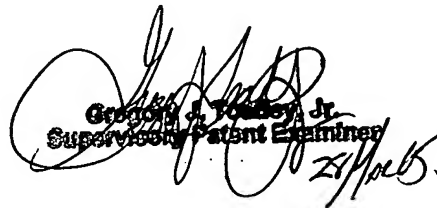
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571 272 2800 ext. 77. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9306 for regular communications and 703 872 9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zandra Smith  
Primary Examiner  
Art Unit 2877

KEG  
March 21, 2005

  
Gregory J. Toatley, Jr.  
Supervisory Patent Examiner